```
=> d his

     (FILE 'HOME' ENTERED AT 06:58:29 ON 06 DEC 2005)
     FILE 'CA' ENTERED AT 06:58:37 ON 06 DEC 2005
L1 69536 S (OPTIM? OR EVALUAT? OR SCREEN? OR DETERMIN? OR IDENTIF? OR ASSESS?
         OR EXAMIN? OR MAXIM?)(7A)(PROCESS? OR REACTION OR EXPERIMENT?)(4A)
         (CONDITION? OR PARAMETER OR YIELD OR DESIGN?)
L2 11953 S L1 AND(CATALY? OR REACTOR OR MICROREACTOR OR MINIREACTOR)
L3   175 S L2 AND (FACTORIAL OR ARRAY?)
L4  8892 S L1/TI,IT,ST
L5   149 S (L3 AND L4) OR(L3 AND(FACTOR? OR STATIST? OR PLANNING OR
         INCREMENT? OR DATABASE)
L6  1519 S L2 AND(FACTOR? OR STATIST? OR PLANNING OR INCREMENT? OR DATABASE)
L7   439 S L4 AND (L6 OR (STATIST? AND (CATALY? OR REACTOR OR MICROREACTOR OR
         MINIREACTOR OR DEVELOP? OR REACTION OR PLANNING OR
         CHEM?)/TI,IT,ST))
L8   549 S L5,L7
L9   455 S L8 NOT(ENZYM? OR DNA OR RNA OR PEPTIDE OR PROTEIN OR BIOLOG? OR
         BLOOD OR DRUG)
L10  342 S L9 NOT PY>2000
L11    5 S L9 AND PATENT/DT AND PY<2003
L12  347 S L10-11
L13  326 S L12 NOT(FERMENT? OR PHOTOGRAPH? OR LITHOG? OR WELD OR COAL OR
         RADIOAC?)
L14  301 S L13 NOT(DOWNHOLE OR CURE OR STEEP ASCENT OR COATING OR PLATING OR
         EXTRACTION)
L15  247 S L14 NOT(PESTICIDE OR NUCLEAR OR WASTEWATER OR FLAME OR BIPOLAR OR
         PHOTOCHEM? OR LIME OR GRAVEL OR TEXTILE)
L16  227 S L15 NOT(POTENTIOMET? OR CLIN? OR GRIND? OR ETCH? OR SEMICONDUCT?
         OR OZONE TRANSFER OR DIPOLE OR REFUSE OR DISTILLATION COLUMN OR
         FISCHER OR TORCH OR CEMENT OR ELECTRON)
L17  217 S L16 NOT (ELECTROPHOR? OR POLLUT? OR FULLER? OR PHOTOCAT? OR STEEL
         COMPN)
L18    6 S L17 AND(FEED OR COMPOSITION)(4A)(VARY? OR VARIAB? OR MIX OR
         MIXTURE OR MIXING)
L19   49 S L17 AND(GAS OR HETEROGEN? OR PROPENE OR ETHENE OR ETHYLENE OR
         PROPYLENE)
L20   40 S L17 AND(FLOW? OR PRESSUR? OR RESIDENCE OR PRACTICAL)
L21   78 S L17 AND(TEMPERATURE OR CONTACT TIME OR SPACE VELOCITY)
L22  112 S L18-21

=> d bib,ab 1-112 l22

L22  ANSWER 16 OF 112  CA  COPYRIGHT 2005 ACS on STN
AN   128:128586  CA
TI   Optimization of olefin copolymerization. Effects of reaction parameters
     on catalytic activity and properties
AU   Baumhardt-Neto, Ricardo; Galland, Griselda B.; Mauler, Raquel S.;
     Quijada, Raul
CS   Instituto Quimica, Porto Alegre, 91501, Brazil
SO   Polymer Bulletin (Berlin) (1998), 40(1), 103-109
AB   The copolymn. of ethylene with 1-hexene using Et[Ind]2ZrCl2/MAO as
     catalyst was studied by multivariate methods.  Three complete factorial
     designs were performed to study the influence of 1-hexene concn.,
```

reaction **temp.**, and [Al]/[Zr] ratio on **catalytic** activity, copolymer viscosity, crystallinity, and m.p. Since the [Al]/[Zr] ratio has a small effect on the **catalytic** activity, a fourth design with 1-hexene and **temp.** was developed, giving higher **catalytic** activities. **Temp.** and 1-hexene concn. were the main effects found in the system. A second order effect arising from 1-hexene vs. [Al]/[Zr] ratio was also detected. Polymer viscosity, crystallinity, and m.ps. decreased with 1-hexene concn. Viscosity decreased with **temp.** whereas crystallinity increased when the **temp.** was raised from 30 to 60°.

L22 ANSWER 36 OF 112 CA COPYRIGHT 2005 ACS on STN
AN 120:302472 CA
TI Dynamic method for the **development** of kinetic models for **heterogeneous catalytic gas** phase **reactions**
AU Kafarov, V. V.; Turek, Fritz
CS Russ. Univ. Chem. Technol., Moscow, Russia
SO Chemie Ingenieur Technik (1994), 66(3), 351-4
LA German
AB A method for model selection and initial parameter evaluation is given and exemplified with the adsorption kinetics in porous **catalysts** applying a flexible system of exptl. **microreactors** (reciprocating piston **reactors**, 5 mL, selective **catalytic** hydrogenation of ethane). Different input functions of **residence** time anal. of these **reactors** were combined and the best combination selected by **statistical** methods. The determinant of the information matrix and the std. deviation of the model parameter are used as evaluation criteria.

L22 ANSWER 42 OF 112 CA COPYRIGHT 2005 ACS on STN
AN 117:195071 CA
TI An **experimental design** for **determining** the **optimum** method of **catalyst** preparation for low **temperature** methanol steam reforming
AU Amphlett, J. C.; Creber, K. A. M.; Davis, J. M.; Mann, R. F.; Peppley, B. A.; Stokes, D. M.
CS Electrochem. Powers Sour. Group, R. Mil. Coll. Canada, Kingston, ON, K7K 5L0, Can.
SO Studies in Surface Science and Catalysis (1992), 73(Prog. Catal.), 343-9
AB Low-**temp.** **catalytic** steam reforming of MeOH was used supplying H-rich **gas** to a solid polymer electrolyte fuel cell. Com. low-**temp.** shift **catalysts** based on CuO-ZnO-Al2O3 are suitable for steam reforming of MeOH; however, they are not necessarily the optimum **catalysts** for this purpose. A **statistical** fractional **factorial** approach to optimize a **catalyst** formulation that is specific for steam reforming of MeOH is described.

L22 ANSWER 57 OF 112 CA COPYRIGHT 2005 ACS on STN
AN 102:205942 CA
TI **Process optimization** using computer-aided **experimental design** and data analysis
AU Cawse, James N.; Cooper, Stephen M.
CS Plast. Bus. Group, Gen. Electr. Co., Pittsfield, MA, 01201, USA
SO Polymeric Materials Science and Engineering (1985), 52, 262-3
AB Two software packages, COED and RS/1, useful in the design and anal. of multivariable expts. are described. The COED is used for the selection

of an optimal subset of expts. from the total no. of possibilities and RS/1 is used for manipulating the data, graphics, fitting equations, and performing **statistical** anal. The uses of these packages in the optimization of a continuous reaction to alkylate a phenol on a fixed bed of **catalysts** and in the kinetic studies of a high-**temp**. esterification are discussed.

L22 ANSWER 61 OF 112 CA COPYRIGHT 2005 ACS on STN
AN 100:141849 CA
TI Thermal degradation of shale oils. 1. Kinetics of vapor phase oil degradation
AU Thakur, Deepak S.; Wilkins, Ebtisam S.; Nuttall, H. Eric
CS Dep. Chem. Nucl. Eng., Univ. New Mexico, Albuquerque, NM, 87131, USA
SO Fuel (1984), 63(3), 401-7
AB As vertical modified underground oil shale retorts have been scaled up and tested, the overall oil yield has declined and is generally lower than that obsd. in an above-ground process. Diminished yields are attributed to a variety of **factors** assocd. with scaleup, such as incomplete rubblization, wide particle size distributions (large blocks of shale), poor **flow** distributions, and increased **residence** times resulting in increased oil degrdn. To study such vapor-phase degrdn. of shale oil, oil produced from a com. underground retort was studied tubular continuous **flow reactor** equipped with on-line **gas** chromatog. for **gas** compn. monitoring. Oil and a combination of **gases** including steam were metered into the preheater and then the vapors passed into a quartz tubular **reactor** in which the **temp**. and **residence** time of the gaseous mixt. were controlled. Complete mass balances were calcd., giving the wt. fraction of oil converted to noncondensable hydrocarbon **gases** and coke. High-**temp**. thermal degrdn. of shale oil was studied under steady state **flow** conditions (i.e., at 425-625° and 2-10 s **residence** time) in a series of **factorial-designed expts**. to **det**. the effects of retorting variables. Addn. of steam to the carrier **gas** did not reduce oil degrdn. losses but did react with the coke, thus changing the product **gas** compn. and quantity. A 1st-order oil degrdn. rate expression was used to model the rate of oil loss. The calcd. activation energy was 17.3 kcal/mol. Chem. analyses of the product liqs. and **gases** confirmed previously reported findings that the oil loss indexes [alkene-alkane, C2H4 [74-85-1]-C2H6 [74-84-0], naphthalene [91-20-3]-(C11 + C12), and **gas**-coke ratios] increase with increasing oil degrdn.

L22 ANSWER 65 OF 112 CA COPYRIGHT 2005 ACS on STN
AN 98:75018 CA
TI Dearomatization of a jet fuel fraction on a platinum **catalyst**
AU Mucka, Viliam; Ostrihonova, Alica; Kopernicky, Ivan; Mikula, Oldrich
CS Fac. Nucl. Phys. Eng., Czech Tech. Univ., Prague, 11519/1, Czech.
SO Collection of Czechoslovak Chemical Communications (1982), 47(11), 2858-66
AB A desulfurized jet fuel fraction was dearomatized by hydrogenation over an Al2O3-supported Pt **catalyst** (0.65 wt.% Pt). The dearomatization proceeded more readily at lower **temps**., but at these **temps**. the **catalyst** is more sensitive to poisons. A **factorial expt**. was **designed** to **det**. the **optimum conditions** for the dearomatization. Virtually complete dearomatization was achieved at 245-295°, 1.5-4 MPa H partial **pressure**

and a **space velocity** of 2 h-1. Some phys. and physicochem. properties of the **catalyst** are presented.

L22 ANSWER 78 OF 112 CA COPYRIGHT 2005 ACS on STN
AN 89:80842 CA
TI The **design** of **experiments** for the **determination** of kinetic **parameters** depending on the type of laboratory **reactors** used
AU Hoffmann, Ulrich; Emig, Gerhard; Mueller, Erwin
CS Inst. Tech. Chem., Friedrich-Alexander Univ., Erlangen, Fed. Rep. Ger.
SO Chemical Engineering Science (1978), 33(3), 404-7
AB The extents to which a certain **reactor** type influences the results of a **statistically designed expt.** are **examd.** for continuous stirred tank and plug-**flow** tubular **reactors** using the criterion of G. E. P. Box and H. L. Lucas (1959). Relations are given for detg. the optimal mean **residence** times and optimal **temps.** In expts. with the same exptl. error on reactions of >0 order the plug-**flow** tubular **reactor** is always superior to the continuous stirred tank **reactor** with regard to reliability of parameter ests.

L22 ANSWER 81 OF 112 CA COPYRIGHT 2005 ACS on STN
AN 88:89219 CA
TI Disproportionation of toluene: **process optimization** by **statistical design** of **experiments**
AU Rawat, D. S.; Bawa, J. S.; Shanker, Uma; Dabral, R. P.; Bhattacharyya, K. K.
CS Indian Inst. Pet., Dehra Dun, India
SO Indian Journal of Technology (1977), 15(3), 114-18
AB The disproportionation of toluene to benzene and xylenes over a zeolite **catalyst** was planned **statistically** (orthogonal central composite design) in the **temp.** range 440-510, 10-50 kg/cm2 **pressure**, **space velocity** (WHSV) 0.58-3.41 and H to toluene molar ratio 4-11. The conversion of toluene was correlated with these process variables by a 2nd degree polynomial, the unknown coeffs. of which were evaluated by the least squares method. The values of optimum conversion at different values of WHSV predicted from the correlation were confirmed by subsequent expts. The model generated contours of conversion which indicate operating variables for a desired level of conversion.

L22 ANSWER 97 OF 112 CA COPYRIGHT 2005 ACS on STN
AN 74:33059 CA
TI **Design** of **experiments** for **determining conditions** in **chemical process development** studies
AU Natarajan, Guruswamy; Banerjee, Pranob K.
CS Hindustan Lever Res. Cent., Bombay, India
SO Indian Chemical Journal (1970), 5(1), 169-80
AB A **statistical** math. method of development, scale up, or optimizing chem. processes is described based on a so-called factorial-design concept in which one factor is kept const. while the others are varied; the factor can be either qual. (batch of material, method of processing) or quant. (**temp.**,**pressure**, etc.). The method is illustrated on a process in which the **temp.**, amt. of reactant, and quality of solvent were examd. in a reaction R + S → T. The effectiveness of screening of process

variables is discussed.

=> log y
STN INTERNATIONAL LOGOFF AT 08:42:38 ON 06 DEC 2005

=> d his

(FILE 'HOME' ENTERED AT 16:33:49 ON 05 DEC 2005)
FILE 'CA' ENTERED AT 16:33:58 ON 05 DEC 2005
L1 2089 S (PASSIVE OR PASSIVELY OR FIXED)(6A)(FLOW(3A)CONTROL?) OR RESTRICT? (3A)FLOW
L2 364 S L1 AND (REACTOR OR REACTION OR MICROREACTOR OR BENCH OR MINIREACTOR OR LABORATORY)
L3 142 S L2 AND (CATALY? OR GAS OR VAPOR)
L4 86 S L1 AND ORIFICE
L5 12 S L4 AND (REACTOR OR REACTION OR MICROREACTOR OR BENCH OR MINIREACTOR OR LABORATORY)
L6 42 S L4 AND (CATALY? OR GAS OR VAPOR)
L7 11 S L4 AND (ADSORPTION OR MAINTAIN)
L8 106 S L3 NOT(NUCLEAR OR CVD OR VAPOR DEPOSIT?)
L9 156 S L5-8
L10 114 S L9 NOT PY>2000
L11 55 S L9 AND PATENT/DT AND PY<2003
L12 130 S L10-11

=> d bib,ab 1-130 l12

L12 ANSWER 4 OF 130 CA COPYRIGHT 2005 ACS on STN
AN 135:212672 CA
TI Parallel flow process optimization **reactor**
IN Bergh, H. Sam; Engstrom, James R.; Guan, Shenheng; Pinkas, Daniel Meron; Self, Kyle W.
PA Symyx Technologies, Inc., USA
SO PCT Int. Appl., 177 pp.
PI WO 2001066245 A2 20010913 WO 2001-US7372 20010307
PRAI US 2000-187566P P 20000307
AB Parallel flow **reaction** systems comprising four or more **reaction** channels are disclosed. Distribution systems, and parallel flow **reaction** systems comprising such distribution systems are also disclosed. Specifically, the distribution systems comprise one or more subsystems, including for example, a flow-partitioning subsystem for providing a different flow rate to each of the four or more **reactors**, a pressure-partitioning subsystem for providing a different **reaction** pressure in the **reaction** cavity of each of the four or more **reactors**, and a feed-compn. subsystem for providing a different feed compn. to each of the four or more **reactors**. In preferred embodiments, the one or more subsystems can comprise at least one set of four or more **flow restricting** means, each of the four or more **flow restricting** means having a **flow** resistance that varies relative to other **flow restricting** means in the set.

L12 ANSWER 22 OF 130 CA COPYRIGHT 2005 ACS on STN
AN 131:230338 CA
TI **Gas flow** characterization of **restrictive flow orifice** devices

AU Shrouf, Roger D.; Page, Shane R.
CS Safety Engineering Department, Sandia National Laboratories, Albuquerque, NM, 87185-1045, USA
SO Sandia National Laboratories [Technical Report] SAND (1997), SAND97-1670, 1-14
AB A **restrictive flow orifice** (RFO) can be used to limit the uncontrolled release of system media upon component or line failure in a **gas** handling system and can thereby enhance the system safety. This report describes a new RFO product available from the Swagelok Companies and specifies the **gas** flow characteristics of this device. A family of four different sizes of RFO devices is documented.

=> log y
STN INTERNATIONAL LOGOFF AT 16:53:18 ON 05 DEC 2005

	Type	L #	Hits	Search Text	DBs	Time Stamp
1	BRS	L1	32	("3175968" | "3316170" | "3602701").PN. OR ("3828171").URPN.	US-PGPUB; USPAT; USOCR	2005/12/06 16:03
2	BRS	L2	34	("2240481" | "4213831" | "4302292" | "4400465" | "4608364" | "4701440" | "4751057" | "4780196" | "4916212" | "4946828" | "4959351" | "5008241" | "5028586" | "5028587").PN. OR ("5304354").URPN.	US-PGPUB; USPAT; USOCR	2005/12/06 16:13
3	BRS	L3	1376524	flow	USPAT	2005/12/06 16:19
4	BRS	L4	1988302	(control or controler or controling or controller or controlling)	USPAT	2005/12/06 16:19
5	BRS	L5	452001	(orifice or capillary or passive or restriction or restrictor or restricter)	USPAT	2005/12/06 16:19
6	BRS	L6	235145	L3 near3 L4	USPAT	2005/12/06 16:19
7	BRS	L7	14345	L6 with L5	USPAT	2005/12/06 16:20
8	BRS	L8	136	L7 same (reactor or microreactor)	USPAT	2005/12/06 16:20
9	BRS	L9	96	L8 not nuclear	USPAT	2005/12/06 16:20
10	BRS	L10	793	L7 and (reactor or microreactor)	USPAT	2005/12/06 16:20
11	BRS	L11	591	L10 not nuclear	USPAT	2005/12/06 16:21
12	BRS	L12	495	L11 not l8	USPAT	2005/12/06 16:21
13	BRS	L13	20	("3096157" | "3285701" | "3304159" | "3460909" | "3518059" | "3607073").PN. OR ("3753653").URPN.	US-PGPUB; USPAT; USOCR	2005/12/06 16:38